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DRM at the intersection of copyright law and technology

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PART IV

*The Changing Nature of the Law:
Coding, Contracting and Ruling*

14.1 Introduction

Digital rights management systems, based on cryptography or other technical means, have been developed in recent years to address the thorny issue of protecting and managing copyright in an electronic environment. DRM systems are now embedded in DVDs, in some musical CDs and in the online distribution of music, news, films and images. They aim to control the use of the work, for example by preventing access thereto by unauthorized persons, by preventing the making of a copy thereof, by allowing only the uses that have been paid for or by imposing the viewing or listening of the work on a specific device or in a determined region.

As soon as new technology has been invented that can enhance the effective exercise of copyright, the fear has arisen that a similar technology might be used to defeat the technical protection. The WIPO treaties of 1996¹ have thus enacted legal protection for the technical protection, and they have been followed by similar pieces of legislation in many countries, such as the United States² and the European Union.³ The relevant pieces of legislation in these states, known as anti-circumvention provisions, prohibit the act of circumvention itself in connection with the DRM systems and the so-called

Research for this chapter was finished in 2006. As a result, it does not include information or sources after that date.

¹ WIPO Copyright Treaty, December 20, 1996, article 11, and WIPO Performances and Phonograms Treaty, December 20, 1996, article 18.

² Digital Millennium Copyright Act, Pub. L. no. 105-304, 112 Stat. 2860 (October 28, 1998).

³ Directive 2001/29/EC of the European Parliament and of the Council of May 22, 2001, on the harmonization of certain aspects of copyright and related rights in the information society, *Official Journal of the European Communities*, June 22, 2001, L 167: 10-19.

preparatory activities (i.e. any act of distribution or manufacture of devices enabling or facilitating the circumvention). Section 14.2 of this chapter briefly explains the new copyright framework resulting from the development of DRM technologies and their protection by the anti-circumvention provisions.

These provisions constitute the most interesting battlefield between the traditional vision of copyright law and regulation by technology. DRM, as a technology, has noteworthy effects on copyright regulation. As is described in section 14.3, DRM systems, when applied to limiting access to controlling the use of some works, act as a technical norm regulating the use of an intellectual object, in a similar manner to the aims of copyright legal norms. The normative effect of DRM technologies is rather different from the normative effect of copyright law, however, both in terms of content and in terms of nature. I then proceed to address these differences and qualify the affirmation that, as far as DRM systems and anti-circumvention laws are concerned, "code is law" (Lessig, 1999b).

On the other hand, DRM technologies tend to dictate the very design of copyright law to lawmakers. Section 14.4 explains how the scope of copyright is no longer decided according to what its proper scope should be but according to what the technology can do. The definition of the technical devices protected against circumvention systematically refers not to the exclusive rights of the copyright owner but to what the copyright owner is able to protect through technology. This brand new scope for copyright protection is not even restricted by any limitations, exceptions or fair use provisions. The legitimacy, under copyright law, of making a private copy, a parody, a criticism, an educational use or a research use does not matter as soon as a technical mechanism is able to inhibit such use or copy of the work. Any use of a work therefore enters, through the legal prohibition of the circumvention of a DRM system, into the arena of control granted to copyright holders.

Consequently, the ambiguous relationship between DRM and copyright is a particularly interesting case study for regulation. DRM systems can be both a new norm, parallel to that of copyright law, regulating access to and the use of copyrighted works, and the source for the copyright regulation itself. Technology is a complement that does not completely achieve the wholeness of copyright law, but it could also be a substitute, likely to make copyright law completely irrelevant. This chapter aims to describe this twofold action of the

technology into copyright norms, and concludes that there is an urgent need for copyright law to resume its proper role.⁴

14.2 Copyright protected and managed by technology

The digital age has undoubtedly given rise to new threats to copyright protection. Technology can also be seen, however, as providing new tools and means for protecting copyrighted works in the digital environment. Technological solutions and aids have been devised very rapidly by the copyright industry. "The answer to the machine is in the machine," predicted Charles Clark in the mid-1990s (Clark, 1996). To repair the legal fence that copyright used to provide for protecting works, a fence that began to collapse under the assaults of the digital world, rights owners considered erecting a stronger and more effective technical fence.

Nowadays the technical protection of copyright is no longer a prediction or a dream, and many copyrighted works are distributed in a protected format: musical CDs used to embed anti-copy mechanisms, DVDs contain a complex technical protection that prevents copying or playing on unauthorized devices or that ensure a geographical distribution of the films, and e-books cannot be copied, modified or used in certain ways. The legal online provision of music or films is aided by intricate functionalities that inhibit some uses, such as redistribution of the work in peer-to-peer networks, the transmission of protected content outside a specifically defined user domain or the making of multiple copies. There are many other examples of the irruption of technological measures into the diffusion of copyrighted works, products and services, from music to films, from e-books to software.

Some technological measures aim to manage the licensing of usage rights and the provision of works in accordance with such usage rules: they are called digital rights management technologies. Such systems identify and describe the intellectual property rights pertaining to digital content and technically apply and enforce any usage restrictions decided by the rights holders as to such content. The success of the DRM terminology resulted in its use to name all technology

⁴ This chapter is taken in part from the thesis I have published about the consequences of the DRM protection of copyrighted works for the copyright regime and principles (Dusollier, 2005).

protecting copyright content, from access control mechanisms, which manage a user's access to works, to anti-copy technologies, which implement a prohibition or limitation on the copying of content. In this chapter, the term "DRM" is used to cover any technological measure that intervenes in the protection of a copyrighted work, either by prohibiting some acts of use or by automatically enforcing and managing the usage rules related to such work. I also refer to technological measures, which is the terminology used by anti-circumvention provisions.

Along with the development of DRM systems to protect copyright, copyright holders have asked for the legal protection of such technical aids and barriers. Technology can be defeated by other technology, as was proven by the early hacking of the DVD protection system and of many other DRM systems. Laws have been enacted to prohibit tampering with the technological measures protecting copyrighted works at the international and national levels. Such legal provisions prohibit the circumvention of the technical protection and the making of or distribution of devices that help or facilitate such circumvention. As I have written elsewhere (Dusollier, 1999), the aim of such legal recourse is to "electrify" the technical fence now surrounding and blocking access to copyrighted works. Building such a fence around works was not considered sufficient, and the fence builders (which is what copyright owners have become) begged for pain to be inflicted on those who still dared to cross the barrier.

The first international legislation that provides such protection was the WIPO treaties of 1996 on copyright and related rights, which require the states that ratify them to

provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.

This mandate for the adequate protection of copyright-protecting technological measures has been complied with by the United States, in the form of its Digital Millennium Copyright Act of 1998, and by the European Union, in a directive on copyright and related rights in the information society of 2001 (the "Copyright Directive"). This directive has now been implemented in all EU member states.

Roughly described, anti-circumvention provisions make it illegal to circumvent a technological measure protecting copyright or to make or traffic in tools or devices that could help or facilitate circumvention. In both legal texts, a tool or device is deemed to be illegal when it is promoted, advertised or marketed for the purpose of circumvention, or has only a limited commercially significant purpose or use other than to circumvent or is primarily designed, produced, adapted or performed for the purpose of enabling or facilitating the circumvention of any effective technological measures. The manufacture, import, distribution, sale, rental, advertisement for sale or rental, or possession for commercial purposes of such unlawful means is prohibited.

In the United States, the technological measures to be protected against circumvention are of two kinds. On the one hand, it is prohibited to circumvent or to traffic in devices that aim to circumvent technological measures that effectively control access to copyrighted works. On the other hand, as far as technology measures that effectively protect a right of the copyright owner (i.e. the right to copy, to display, to perform, to distribute or to communicate the work) are concerned, only the distribution of circumvention devices is deemed to be unlawful. In the European Union, the technological measures to be protected by such new provisions are broadly defined as "any technology, device or component that, in the normal course of its operation, is designed to prevent or restrict acts, in respect of works or other subject-matter, which are not authorized by the right-holder of any copyright or any right related to copyright" (article 6(3) of the Copyright Directive).

The issues raised by those anti-circumvention provisions are many. The main effect of the use of technology in the protection of copyright and the further intervention of the law to protect this technical aid is to multiply the layers of monopoly enveloping the copyrighted work. Henceforth a piece of music or an audiovisual work is subject to three cumulative layers of protection. The first – and traditional – one is its protection by the law of copyright or related rights, which grants to the author a defined power to control the use of his/her work. Second, the work can be protected by a technology that inhibits some uses thereof. This second layer of protection is, moreover, doubled by the law, through the anti-circumvention provisions, which forbid neutralizing or tampering with the technological protection. "Law – technology – law" has become the three-tiered protection

scheme that can be applied to literary and artistic works. This three-fold monopoly sets up new regulations into copyright, which I address now.

14.3 The regulation of copyright by technology

The reservation brought forward by the recourse to technology sets up a new kind of control over access to and the use of copyrighted works. The new layer of protection granted by DRM technology to copyrighted works such as music, films, documents and e-books has all the features of a regulative norm. It prevents users from carrying out some acts accessing and using works, thereby acting as a "code" regulating the enjoyment of artistic and literary works (section 14.3.1). This regulation by technology is not neutral, however, and brings about new norms applying to the enjoyment of artistic works (14.3.2). In addition, a technical norm of this type differs subtly from the copyright legal norm itself, and such differences imply considering the regulative power of the technology as somewhat relative and incomplete, albeit more extensive in some ways (14.3.3).

14.3.1 *The regulative nature of the technological measure and the anti-circumvention provisions*

Through the joint efforts of the three forces, the copyright owner enjoys a broader monopoly over the work: his/her exclusive rights are completed by the factual control granted by the technical aid and by the new remedies provided by the anti-circumvention provisions. Jean-Marc Mousseron and Michel Vivant (1989) have analyzed the different modes of control that one can have over an immaterial good. They call such control a "reservation," and draw a distinction between two major modes of reservation. First, reservation by a secret, or intellectual reservation, enables the intangible thing to be kept unknown by impeding or limiting its divulgation; second, economic reservation, or reservation by the market, divulges the work or invention while retaining some control over it, namely through the grant of an intellectual property right or of remedies sanctioning some behavior (as in the case of unfair competition practices). The history of IP has been one of the gradual granting of new legal reservations over the immaterial assets that promoted

the divulgation and diffusion of intellectual works and products on the market, such as copyright or patent.

The reservation resulting from combining the DRM and anti-circumvention provisions is a hybrid mixture of intellectual reservation (since technological measures can reduce access to works) and economic reservation (since technological measures will control the diffusion of works in the market), of factual and legal modes of economic reservation. Technological control can either make impossible or reduce access to or use of the work, or can monitor and manage such acts of use. In the first case, the reservation over the work is evident: the user cannot benefit from some use of the work. For instance, someone acquiring a protected DVD cannot make a copy thereof, whatever its purpose. In the second case, the user will be able to use the work, but such usage will be controlled and might be in return for payment, which is another type of economic reservation. An example is the FairPlay DRM enshrined in iTunes pieces of music delivered by Apple, wherein the number of copies and transfer to some types of equipment is limited and controlled.

In some ways, the different sorts of reservation that a technological measure can impose as to digital content remind us of the distinction drawn by Gilles Deleuze (1990) between technologies of discipline and technologies of control. Technologies of discipline constrain, lock up and prevent while technologies of control authorize but in a regime of probation. Deleuze says that regulation enforced by the first types of technology is a sort of mould, while that enforced by the second types operates as a modulation. DRM technologies are closer to a modulation mechanism of regulation, since they determine and adjust the extent of the use of the work allowed according to the user, to the license he/she entered into or to the remuneration he/she paid. They do not block access to the work but make it subject to the disciplinary conditions as decided by the right holder. When the right owners decide to provide digital content with some defined usage rules (e.g. including a number of copies, a number of allowed viewings, etc.) this usage becomes the norm for the recipients and users of such content, even though the usage they are entitled to enjoy from such works under the law might be broader and less restricted.

In this sense, we can say, with Lessig (1999b) or, before him, Joel Reidenberg (1998), that the code is law; in other words, that the digital code put in place by DRM systems acts as regulation, thereby modifying our cultural and social behavior as to copyrighted works.

14.3.2 The false neutrality of DRM

The image of the copyright monopoly over works, as reflected in the successive mirrors of the technical protection and anti-circumvention provisions, has shifted, sensibly, to one of broader control over access to and use of the works. In the technological measures and the anti-circumvention provisions, copyright is not portrayed alike but has been distorted, to a worrisome extent.

Initially, copyright is about entitling the author to control the public exploitation of his/her works and to decide in what ways the works will be made available to the public. For that purpose, copyright grants the author the right to authorize the making of copies of his/her work (the right of reproduction) and the right to authorize the diffusion of his/her work to the public (which can encompass, depending on the country, rights of public communication, of display, of performance, of distribution).⁵

The "public" element of such rights is crucial. The core of the copyright monopoly is the public diffusion of the work, either directly by acts of communication or indirectly by the making of copies that can be distributed or perceived by the public. What copyright covers is the making available of the work to the public; it is not the reception or enjoyment of the work by an individual member of that public. This "publicity" of the copyright monopoly is rooted in the history and justifications of literary and artistic property (Dusollier, 2005).

In a digital world in which intermediaries have disappeared and the copyright owners have started to distribute their works directly to the public, resorting to technological measures enables them to control both sides of the transmission: from the making available to the reception of or the getting access to works. This is the very purpose of many DRM technologies that are available today. Access controls manage the end user's access to digital content, DRM systems monitor and enforce the usage of the work by the end user, sometimes preventing further distribution of the work to another public or impinging the making of a copy thereof, sometimes controlling mere acts of use that do not imply a copy or a public transmission of the work.

⁵ In most countries, the author also enjoys a moral right, the objective of which is to protect his/her personality enshrined in the work through the rights of paternity (or attribution, to use less sexist terminology), of divulgation and of integrity.

The technological protection of copyright thus makes access to and the enjoyment, use and consumption of works enter the sphere of the monopoly exercised by the copyright holders. This extension of the copyright area of control is not simply allowed by a technical and factual action but is also secured by the law through the anti-circumvention provisions.

In the United States, the case law applying the DMCA has construed the notion of the technological measures that are protected against circumvention so as, basically, to include any technology under the sun.⁶ If, by using the work, one is in one way or another faced with the operation of a technological function, even without noticing it, that technological measure is, under this case law, a technological measure controlling access to the work. The mere existence of a technical aid or control makes it a technology protected against circumvention! The right holder, by using a technology to prevent any act of access to or use of the work, therefore automatically gains the further protection of such a technical barrier by the anti-circumvention law.

It is the same in the European Union, where the technological measure to be protected is defined as "any technology, device or component that, in the normal course of its operation, is designed to prevent or restrict acts... which are not authorized by the right owner of any copyright or any right related to copyright as provided for by law."⁷ A DRM system will consequently be protected against circumvention as soon as it protects an "act... not authorized by the right owner." One could not dream of a better tautology: obviously, since the right holder has decided to protect technically an act of use related to his/her work, it means that he/she was willing not to authorize such an act. Any DRM system or anti-copying device is then addressed by such a legal remedy, and the protection of the copyright law, by its anti-circumvention element, extends to any act of use of the work.

In a way, it could be said that the normative action of the DRM system and of the legal protection thereof, under the pretence of

⁶ See, for example, *Universal City Studios, Inc., et al. v. Shawn C. Reimerdes et al.*, 111 F. Supp. 2d 294 (SDNY 2000) *conf'd*, 273 F.3d 429 (2d Cir. 2001); *United States of America v. Elcom Ltd. & Dmitry Sklyarov*, 203 F. Supp. 2d 1111 (ND Cal. 2002); *Lexmark Int'l v. Static Control Components, Inc.*, 2003 US Dist. LEXIS 3734 (ED Ky. 2003); and *321 Studios v. Metro Goldwyn Mayer Studios, Inc., et al.*, no. C 02-1955 S1 (ND Cal. 2004).

⁷ Article 6 § 3 of the "Copyright Directive."

simply enforcing the rights of copyright owners, have assumed a broader duty. DRM technologies sometimes only replicate the rights granted by copyright (when they impede the copy covered by the reproduction right conferred by copyright law), sometimes they colonize new territories in the land of free uses of works (when they submit the number of viewings to a graduated fee). Either they reinforce the copyright prerogatives or they create new reservations over the work. The technical tool can thus act as a *representative* of the copyright, as it technically conveys the rights of the author, by preventing the reproduction, communication or modification of the work. It can also go beyond that mere representative function, however, and act as a *mediator*, in the sense that the technology can shift the object of those rights or build up some new relations to the work, by constraining the access thereto or by determining the conditions for its reception and enjoyment (this distinction is borrowed from Bruno Latour, 1993). In the first case, the technology is the means of the copyright enforcement; in the latter case, it is both the means and the end of an extended protection of the work.

14.3.3 *The nature and scope of the technical regulation of copyright*

It is worthwhile to note that such a normative effect of the technical regulation over works differs, in nature and scope, from that of copyright law. Technological measures embedded into copyrighted works might have, to some extent, more pervasive power in inducing and constraining a defined behavior as to the access to and use of works (section 14.3.3.1). This normative power is, equally, less than the traditional copyright norm, however, as far as the object of the norm (14.3.3.2) and the operation of the norm (14.3.3.3) are concerned.

14.3.3.1 *The normative effect of the technological measure: an a priori reservation*

A key difference between any regulation by law and regulation by a technical act lies in the self-execution of the technical response to the norm infringement. This is particularly true with DRM in the copyright field.

The technical means imposes itself on any user of the technically protected work. Its force rests upon intrinsic and immediate elements

of the technological measure, which operate prior to any copyright infringement. The technical norm prevents *de facto* a *de jure* infringement; it acts before the infringement of the legal norm of copyright could even take place. To that purpose, the technology is an *ex ante* remedy (i.e. a remedy that intervenes before the unlawful act that would justify the sanction). In a way, the technology replaces morality, which resides in the hope that the user will not infringe the copyright. Unlike morality, however, compliance with the law is ensured by technology securely and with no hesitation.

This differs from the legal norm, which applies *ex post* remedies that have to be asked in front of a court, thus resting on elements exterior to the infringed legal norm itself. As Lessig (1999b) says, "The constraints of architecture are self-executing in a way that the constraints of law, norms, and the market are not. This feature of architecture – self-execution – is extremely important for understanding its role in regulation."

This self-executing norm makes enforcement of the technological norm rather different from enforcement of the law. Both norms integrate the idea of "force," which is beautifully conveyed in the English terms *enforcement*, *enforceability* and *to enforce the law* (Derrida, 1994), or in the French expression *force de loi*. This principle of the "law in-force" is fundamental to the legal norm. The regulation enabled by the law finds its force in the very limits of the law itself, and solely within such limits. The "enforcement" of the law that leads to remedies and sanctions draws its legitimacy from the law that is infringed, even though such remedies and sanctions have recourse to institutions and means that are parallel and external to the infringed legal rule and that intervene after the infringement. Conversely, the force embedded in the DRM system, or in other technical means of copyright enforcement, lies in the technology itself.

This gives the technical norm a greater effect on access to and the use of copyrighted works. The user is to some extent forced to comply with the technological dictate, without being able to argue the legitimacy of that copyright enforcement in justice.

14.3.3.2 *The object of the DRM regulation: the embodiment of the work*

The constraint enabled by the DRM system on the copyrighted work is somewhat less than what copyright law achieves, however. Indeed,

the monopoly that the technological measures grant to the copyright holders is rather limited. As a mere factual constraint, the technical barrier cannot enshrine the artistic work in its entirety, as an intangible and immaterial object. Technological locks, such as DRM systems, encapsulate only a tangible copy of the copyrighted work, its embodiment in a physical entity.

This copy can be a tangible medium, such as a disk, a tape, a piece of paper, a CD or a DVD, or it can be a stream of bits that conveys either the transmission of the work through digital networks or its storage in a hard disk or server. It is through such copies of the work, whether a tangible object or an intangible vector that enables its transmission, that the exploitation and commercialization of the work take place. As an example, the technical protection of a DVD does not constrain the use of the film, which might be viewed in other formats, but, rather, the use of the film as embodied in that specific copy in the DVD. As to DRM systems, their architecture usually comprises a repository of works that delivers and simultaneously secures a copy of the work requested by the user. The making of a copy to be provided to the user is thus concomitant to the affixing of a technical protection. As "commodification is linked to the embodiment in a physical object" (Radin, 2002), the technological protection of copyrighted works aims to secure the digital exploitation of works through their commoditized forms, thus, in turn, increasing the commodification of works.

The work itself resists any physical or technical appropriation, thereby making the technical reservation incomplete. The work might exist in an unprotected format. Even though some recent works can be distributed only in technically protected copies, they are only ersatz substitutes for the work itself. Copyright governs the intellectual work, the discourse or expression that remains the same in the ubiquity and diversity of the material objects that embody it. Each of these material embodiments does not know the same uniqueness in such ubiquity (Bergé, 2002; Benabou, 2005). The artistic or literary work still exists beyond its embodiments. A piece of music, for instance, even though it has been distributed publicly in technically protected format, has an ubiquitous and autonomous existence. It can be sung, performed, fixed, reproduced and communicated to the public. Equally, a literary work can be read or rewritten without the need for that copy to result from the material object. This is less

true for other types of works, such as films, pictures or software, that are more strongly dependent on the media in which they are embodied. For these works, their reproduction will probably require going back to the media that might be technically protected.

As a conclusion, it is not the work as an intangible and diverse thing but the work in its multiple materiality that forms the object of the technical reservation, the work as a commodity, a good or a service. This does not mean that the technical measure has no effect on the work itself, which exists also through its material embodiments. Access to the work depends on the number of material embodiments. Even though the pieces of Shakespeare are distributed as e-books that are technically protected against reproduction or free access, it is not very difficult to enjoy such works without any technical constraint. It will be the same with the *Mona Lisa*, whose reproduction could be displayed at the Louvre Museum with an anti-copy mechanism, but many copies of the famous painting can be found elsewhere. In contrast, should a film be distributed only in a technically locked-up DVD, access to its viewing, besides access to theatres that could screen it, will be possible only on the conditions laid down by the right owners in the technical features of the DVD. In that sense, one can say that technological measures produce scarcity in some cultural sectors.

14.3.3.3 The operation of the DRM regulation: a catalogue of technical acts

The rights granted by copyright reserve some acts of use of the work that are synthetically defined. For example, the right of reproduction is defined so as to cover any act of copy of a work, whatever the way or technology of reproduction might be. The manual copy, the printing, the scanning, the filming, the adaptation, the caching of a work are all acts that will trigger the exclusive right of reproduction. The definition of "reproduction" or "communication to the public" is neutral, in the sense that it is not linked with any specific technology.

Conversely, what a technical measure can do to protect a work against undue reproduction will always be defined in an analytical way. No technical tool will be able to prevent all acts of reproduction that could be covered by the copyright law, but it will pursue a specific function by inhibiting one precise act of copy (e.g. the printing, the burning of a CD or DVD, the making of a digital copy on one's hard

disk, or any other act of use, such as access to one copy, the verification of the compliance of the player with the technically defined format of the work, and so on). This specific and restricted function of technical protection could be compared to what Latour has called the "script of the device" (Latour, 1993; Akrich, 2006): a program of action that has been defined by the right holder and determines the design of the DRM system.

The DRM system therefore does not achieve the same type of control over the work as copyright law does. It is not, as some say, the machine translation of the rights of the copyright owners, but only the exercise and application of the will of the copyright owners as to one or some copies of the work and as to a defined act of use carried out in a defined context.

In other words, the technical reservation of the work is not as complete as its legal reservation. Even though DRM implies an immediate and proactive enforcement of its usage rules, it will be as extended as the copyright law in the work only by compiling each technical constraint on each embodiment and copy of the work. The sum of all technological measures on each copy of the work could never constrain all potential users of the work, however.

14.3.4 Copyright law designed by the technology

The technical protection of copyright does not only have a normative effect by itself; it also induces the very design of the regulation by copyright law. Indeed, many features of copyright regulation have been dictated, in recent years, by the technological norm. This technological mandate in copyright law is particularly evident as far as DRM systems are concerned. Anti-circumvention laws are strongly dependent on what technology *can* do and not on what technology *should* do according to social and legal norms.

First, no lawmaker has ever prohibited or limited the use of a technological measure when the latter infringes the boundaries of copyright. DRM technologies can be used to monitor and manage the use of public domain material. Anti-circumvention laws will not bring any remedies against the person who bypasses a technological measure affixed to non-copyrighted content, however, or who sells means to circumvent such a technological measure. The constraint on the public domain element nevertheless remains, or, one should rather

say, the constraint on one embodiment of a public domain element impedes the free use of that particular embodiment. DRM technologies can also inhibit acts of use that could have a social value. For instance, e-books give the right holder the ability to prevent the display of the text in large print, as normally enabled by the system to favor visually impaired people. Lawmakers have never reflected on the social consequences of such a technical regulation, which is left solely to the decision of the copyright industry.

Second, as we have seen earlier, the scope of the anti-circumvention provisions is defined largely by the scope of the technological measures. On the one hand, the definition of the technological measures to be protected against circumvention systematically refers not to the exclusive rights of the copyright owner but to what the copyright owner is able to protect through technology. US case law has protected any technological measure affixed to the work, since such a relationship between the technology and the intellectual work technically meant that, to get access to the work, one would necessarily pass through the technical gate, and hence unlawfully circumvent it, if no due authorization had been given. The European definition of the technological measures in the anti-circumvention provisions refers to the technical protection of any act unauthorized by the copyright owner. I have already said that such a definition makes any technical fence a protected technological measure as soon as its very presence indicates that the constrained act of use is not permitted by the right owner. For comparison, the WIPO treaties of 1996 that are the source of the anti-circumvention provisions deal with "technological measures that are used by authors *in connection with the exercise of their rights* and that restrict acts which are not authorized by the authors concerned or *permitted by law*" (emphases added). Here the link between the scope of the copyright law and the scope of the legal protection of technological measures is direct. The WIPO treaties do not entitle the copyright owners to gain further protection through anti-circumvention provisions.

The same is true for copyright exceptions and limitations or fair use. Most countries know some limitations to the copyright monopoly when other social or cultural values are at stake, for instance for education, libraries, handicapped people, parody, quotation, criticism or review. What happens to such copyright exceptions when a technological measure can prevent any act of reproduction, whatever its

purpose? Can a person be liable for circumvention activities when he/she tampers with a technical lock only to benefit from an exception afforded by the law or when he/she distributes circumvention devices with the sole purpose of helping users to benefit from such exceptions? This is undoubtedly the trickiest issue of the anti-circumvention provisions (Dusollier, 2005).

Although the WIPO treaties paid attention to safeguarding the copyright exceptions within the anti-circumvention provisions, by laying down that technologies that inhibit acts permitted by the law will not be protected against circumvention, the US and EU provisions did not. Both the DMCA and the EU Copyright Directive state that the technological measure prevails over the exercise of fair use or exceptions to copyright. Such exceptions excuse neither an act of circumvention nor an act of trafficking in circumvention devices. Armed with technological measures and anti-circumvention laws, the right holder is now entitled to prevent the users from making a fair use of copyrighted works.

This clearly results from the EU Copyright Directive and from the US DMCA. Both texts provide for some safeguarding of exceptions, but these are rather limited and insufficient. The US legislation lays down only a list of very restricted and ill-founded exceptions to the circumvention prohibition⁸ and entrusts an administrative body with evaluating the "adverse effect on fair use" that the application of the anti-circumvention provision might have.⁹ The EU directive requires member states to find solutions so as to enable the legitimate user of a work to benefit from some exceptions, notwithstanding the presence of a technological measure that constrains the normally free use.¹⁰ This solution is limited to some exceptions, however, and for the most part leaves room for the intervention of the copyright holders themselves. Indeed, the solution is based on voluntary intervention on the part of the right holders. Such intervention, as the text of the directive implies, could be found in contracts with the user or in modification of the very design of the technology. One can think of putting in place technological measures that permit the making of one copy or of one low-quality copy. In Germany, scientific publishers have entered into an agreement with libraries to supply them, provided some conditions

⁸ 17 USC    1201(d) to (j). ⁹ 17 USC    1201(a)(C).

¹⁰ Article 6    4 of the "Copyright Directive."

are met, with versions of electronic publications that are not technically protected, so as to enable them to make preservations and archiving copies thereof.

If copyright owners propose anything to address these exceptions, lawmakers are no longer obliged to rule on the matter. The logic of such solution is at best rather dubious: it entitles copyright owners to employ any technical constraint on the work, but, in order to reassure users, it encourages the former to let users benefit from some freedoms, leaving the search for an appropriate balance to the copyright owners themselves and thus, once again, to fully deploy technical methods. The regulation by law is curiously absent from such an architecture.

Furthermore, this solution does not apply, according to the EU directive, "to works or other subject-matter made available to the public on agreed contractual terms in such a way that members of the public may access them from a place and at a time individually chosen by them."¹¹ The wording of this provision plainly refers to the definition of the right to make works available to the public,¹² as laid down in article 3 of the directive. It would mean that any on-demand service will not have to comply with the obligation to safeguard the exceptions and could be completely locked up. The vagueness of the wording could nevertheless jeopardize all the good intentions of European lawmakers. Making works on the internet available on demand could become the prevalent business model for the distribution of works. The requirement that such services have to be delivered on contractual terms does not matter much given the ease with which a click-wrap license can be embedded in digital products. Some scholars have expressed concerns that this paragraph could comprise the entire internet and make void any obligation for preserving some exceptions. The uncertainty of the business models that will prevail on the internet in the future could definitely prove them right. It also shows the preference that European lawmakers are showing to

¹¹ Article 6    4 of the "Copyright Directive."

¹² Article 3 of the "Copyright Directive" states that "Member States shall provide authors with the exclusive right to authorize or prohibit any communication to the public of their works, by wire or wireless means, including the making available to the public of their works in such a way that members of the public may access them from a place and at a time individually chosen by them."

copyright owners by letting them exclude exceptions altogether by distributing their works under the terms of a contract.

Copyright owners are thus granted some legitimacy in controlling, through technology, acts of use traditionally exempted by copyright law. Here also, what technology can do becomes what the extent of copyright should be. One section of the preamble in the European directive is very clear in this respect. It says that "[private copy] should not inhibit the use of technological measures or their enforcement against circumvention."¹³ In other terms, the European legal text validates the technological definition of what should remain free private copy or not. Another principle of the directive leans in the same direction. The text says that the levies that are traditionally applied to blank tapes and copying devices to compensate for private copy exception should take into account the application of the technological measures preventing such private copying from taking place. This so-called "phasing out" means that, as soon as the anti-copy measures are put in place, no levy should be paid on copying equipment or blank tapes or CDs. Here again, the regime of a private copy exception in connection with fair remuneration gives way to a regime of technical prohibition of private copies. The private copy exception will nevertheless survive in many countries, but in an ambiguous situation. As to technically protected works, users will no longer enjoy the right to a copy that is granted to them by law, while, for works that are not technically protected, authors will not benefit from fair remuneration in compensation for the private copies that will still be made. The legal regime that used to embed a fair balance between the two interests has given the floor to a regime defined only by technical capacity.

One should also bear in mind that, for all copyright exceptions that are not listed in the "safeguarding" regime of the European directive, the technical regulation can be as complete as the copyright owners decide.

That technical colonization of uses that were recognized as uncopyrightable by the law can be explained by some law and economics discourse that tends to consider copyright exceptions and fair use as nothing but market failures. In such a view, copyright exceptions are not key elements in the copyright architecture that are justified by

¹³ Preamble, section 39.

social and philosophical motives, but are simple areas without control that the copyright owner is doomed to tolerate for want of a way to exercise his/her rights fully. Technological measures are deemed to give back to copyright owners the control they have lost over the uses that were previously tolerated as exceptions. Such an argument is rather circular: there is a market failure, in that the market alone cannot achieve a better solution for the allocation of resources. As far as copyright exceptions are concerned, the law has already intervened to cure the existing market failure, by allocating to the users some uses of copyrighted content (e.g. because the social benefit of leaving such uses beyond the reach of copyright was considered stronger than the benefit of allowing the copyright owners to control them). There would be a market failure only if the law had entitled the copyright owner to exercise his/her rights and if the market did not enable such an exercise. Therefore, the rhetoric about the original market failure that technology could suddenly solve, thereby restoring full copyright control (whereas copyright control has never been – and never should be – complete), does nothing but create that market failure. That perverse reasoning makes it easy to claim afterwards that the exception is not justified anymore since the market failure has disappeared! In other words, in order to prove that the copyright holder should be entitled to exert technical control over some uses that have been allocated by law to the user, the argument in favor of the technological measures states that such control is already and in fiction enjoyed by the copyright owner.

14.4 Conclusion: restore the law in copyright regulation

In conclusion, it is certainly true to say that, in the United States and the European Union, technological capacity now dictates the legal scope of copyright protection.

Regulation by law has been determined on the sole basis of what the technology can achieve, without any due consideration of what the proper scope of the monopoly over works should be. The social and public justifications for permitting some uses of copyrighted works stand aside to let the technology deploy its full capacity. Technological measures are becoming substitutes for copyright even though they are still broadly advertised as mere complements to it. The WIPO treaties addressed only DRM systems

preventing uses covered by copyright, and gave immunity to copyright exceptions and limitations. Conversely, the EU and US anti-circumvention provisions address any use that technology can encapsulate, and consider exceptions and fair use as nothing but failures of the copyright body that technology can heal.

This phenomenon has been dubbed *private ordering* by some American scholars (Cohen, 1998; Samuelson, 2002). Elkin-Koren has defined this notion as the fact that "the rule-making process regarding the use of information is privatized, and the legal power to define the boundaries of public access to information is delegated to private parties" (Elkin-Koren, 2001). By resorting to technological measures to enforcing their rights, copyright owners unilaterally decide what the extent of their monopoly and what their reservation over their works should be and what the benefits of the users should look like.

Regulating the simple use of works, or access to works, by technological measures and anti-circumvention laws enables the distribution of the works to any individual to be regulated. From exploitation of the work, its diffusion to the public as a whole, the copyright has shifted to control of the business model, aided by technology, of the distribution of copyrighted works to individuals.

This move has distorted the copyright law to an extent that we are only beginning to experience and understand. The technology that helped achieve it was both the pretext and the means to accomplish this shift in copyright.

How we should address this replacement of the foundations and principles of copyright by rules imposed by the mere technical fact is one of the key questions in the field of copyright today. Failing to give an adequate and balanced answer to it would be tantamount to stealing copyright from the public and giving it to industry. The public is becoming more and more contemptuous of copyright. It leads to an increasing tendency to infringe copyright. Paul Goldstein (1997) has said that one great virtue of copyright is its balance, "one that weighs authors' interests against the need for public access. This balance has withstood, and been shaped by, the test of time and, however incompletely, has won civil obedience through the reasonableness of its command."

By putting technology on the throne of copyright in order to achieve a more fine-grained control of the use of the work by individuals, this can only engender greater civil disobedience. Technology as a tool to help copyright in the digital age would then finally be the end of copyright.

Thwarting this development should rest on a proper understanding of the very nature of technology and the way it interacts with law. By its very nature, technology is prosthetic: it creates a shortfall and substitute for that failure rather than completing it. For instance, the typewriter was specifically invented to enable the blind to write, to access mechanical writing. Ultimately used by everybody, the typewriter changed the way we write and communicate. When using such a machine, one has to unlearn the vision of touch and appropriate a sort of blindness (Preciado, 2000). Technology was created to remedy a deficiency but, in order to operate fully, it itself created a similar deficiency. The use of technology in copyright is similar. It is a solution to the lack of an effective protection of copyright. In order to deploy its full operation and power, however, it has to create an absence of copyright, or at least a dissimulation of copyright behind the dictate of technology. Restoring the law in copyright, going back to its source principles, is the only solution for keeping an acceptable balance in intellectual property and using technology as an adequate tool and aid. The application of a technology-aided paradigm of copyright is about managing the relationship between technology and copyright law, not about replacing one by another.

To this end, the extraordinary potential of DRM systems both to constrain the use of works and to influence lawmakers needs to be curbed. This could be achieved by different and complementary legal actions. First, lawmakers should not be reluctant to control what technology can achieve, and could, in some cases, regulate technical operations, or even prohibit the technology from constraining some uses of works. The anti-circumvention legal provisions should also define the technological measures to be protected by reference to the exercise of exclusive rights of copyright or to the use of technology in the framework of the copyright exercise; it should, however, clearly limit technical prerogatives. Finally, the law has to find an effective and balanced solution for safeguarding the benefit of all copyright exceptions. The key social role and value of the limitations that lawmakers have imposed on copyright and on copyright owners should be stressed and reaffirmed.

It is a matter for regret that this is not the path that present-day copyright lawmakers have decided to follow.